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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/812,862	03/20/2001	Jack R. Wands	00786-282003	2989

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EXAMINER	
VOGEL, NANCY S	
ART UNIT	PAPER NUMBER
1636	

DATE MAILED: 11/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/812,862	WANDS ET AL.	
	Examiner	Art Unit	
	Nancy T. Vogel	1636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *20 and 22-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *20* is/are allowed.

6)☒ Claim(s) *22-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The finality of the Office action mailed 6/15/04 is withdrawn, and prosecution is hereby reopened in order to make new rejections set forth below.

Claims 20, 22-25 are pending in the case.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beames et al. (Virology 194:597-607) in view of Xian-Jun et al. (Hepatology, Vol. 1, No. 5, pp. 781-787, 1989).

Beames et al. disclose a nucleic acid encoding a polypeptide that comprises an amino acid sequence identical to amino acids 1 to 171 of SEQ ID NO :12 (see Fig. 1A, deletion of amino acids after position 171). Furthermore, it is noted that due to the open claim language of claim 23, the claim encompasses such polypeptides as that having a carboxyterminus at 176 followed by LAS, disclosed in Fig. 1 of Beames et al. The reference discloses vectors containing said nucleic acid and cells containing said vectors (see page 600 first column line 17-28). Since the polypeptide disclosed by

Beames et al. comprises the amino acid sequence 1-171 of SEQ ID NO: 12 of the instant specification, it would be expected that said polypeptide would have the recited activity, i.e. reduction of hepadnavirus replication.

The difference between the claims and the reference is that different promoters are recited.

However, Xian-Jun et al. disclose the use of hepatocyte- specific (i.e. those promoters normally associated with the genes encoding albumin, alpha-fetoprotein, alpha-antitrypsin, and retinal-binding protein), cytomegalovirus, herpes simplex virus, hepatitis virus, Rous sarcoma virus and SV40 virus promoters, all of which are disclosed to be active in hepatocyte cells, the cells known to be infected by HBV (see page 781). It would have been obvious to one of ordinary skill in the art to have substituted any known promoter, such as those disclosed by Xian-Jun et al., in the vectors disclosed by Beames et al., since both references disclose the use of promoters for the expression of foreign genes, and the use of promoters known to be effective in hepatocytes would have been obvious to one of ordinary skill in the art who wished to express HBV genes, since HBV is known to infect hepatocyte cells. One would have been motivated to make this substitution by the desire to express recombinant HBV proteins in hepatocytes, since these are the cells normally infected by HBV.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Souw et al. . (WO 94/12617) in view of Beames et al. (Virology 194:597-607 and Xian-Jun et al (Hepatology, Vol. 1, No. 5, pp. 781-787, 1989).

Souw et al. disclose nucleic acids encoding polypeptides that comprise a first amino acid sequence of at least 70 amino acids in length that is identical to a region of a wild type hepadnavirus core protein, including one variant, delta 8, that has a deletion near the carboxyterminal end of the wild type hepadnavirus core protein, and which comprise an amino acid sequence that is identical to a portion of a wild type hepadnavirus surface protein, vectors containing said nucleic acids, and cells containing said nucleic acids (see abstract and page 21 lines 3-24).

The reference does not disclose said nucleic acid in which the first amino acid mentioned above has a deletion of at least the three carboxyterminal amino acids, wherein the carboxyterminal amino acid corresponds to position 171, 175 or 178 of SEQ ID NO:12, or the nucleic acids operably linked to the particular promoters listed in the claim 22.

However, Beames et al. disclose a nucleic acid encoding a polypeptide that comprises a first amino acid sequence of at least 70 contiguous amino acids in length that is identical to a region of a wild type HBV core protein and lacks a second amino acid sequence of the wild type HBV core protein, wherein the second sequence comprises the carboxyterminal three amino acids of the wild type HBV core protein, and the carboxyterminal amino acid of the first amino acid sequence corresponds to position 171 of SEQ ID NO:12 (see Fig. 1A, deletion of carboxyterminal amino acids to position 171, designated Cd171). The reference discloses vectors containing said nucleic acid and cells containing said vectors (see page 600 first column line 17-28).

Xian-Jun et al. disclose the use of hepatocyte- specific (i.e. those promoters normally associated with the genes encoding albumin, alpha-fetoprotein, alpha-antitrypsin, and retinal-binding protein), cytomegalovirus, herpes simplex virus, hepatitis virus, Rous sarcoma virus and SV40 virus promoters, all of which are disclosed to be active in hepatocyte cells, the cells known to be infected by HBV (see page 781), for the expression of a gene of interest in hepatocytes (see page 781, second column, third paragraph).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the nucleic acid disclosed by Souw et al. to include as the core protein element, the deletion mutant disclosed by Beames et al. having a deletion of carboxyterminal amino acids to position 171, in the disclosed fusion protein, and to further include the nucleic acid in a vector, and in a cultured cell, since Souw et al. disclose that any hepadnavirus (e.g. HBV) core protein variant, including fragments thereof, may be used in the disclosed fusion proteins.

One would have been motivated to include carboxyterminal deletions of the HBV core protein in the fusion proteins disclosed by Beames by the desire to express HBV antigens for the prevention or treatment of hepatitis or other undesirable consequences of HBV infection. The general teaching of any fragment or deletion of HBV core protein fused to a HBV surface protein is disclosed in the Souw et al. reference, and therefore was well known in the art.

It would have been further obvious to one of ordinary skill in the art to have substituted any known promoter, such as those disclosed by Xian-Jun et al., in the

vectors disclosed by Souw et al. in view of Beames et al., since the references disclose the use of promoters for the expression of foreign genes, and the use of promoters known to be effective in hepatocytes would have been obvious to one of ordinary skill in the art who wished to express HBV genes, since HBV is known to infect hepatocyte cells. One would have been motivated to make this substitution by the desire to express recombinant HBV proteins in hepatocytes, since these are the cells normally infected by HBV.

Conclusion

Claim 20 is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nancy T. Vogel whose telephone number is (571) 272-0780. The examiner can normally be reached on 6:30 - 3:00, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Irem Yucel, Ph.D. can be reached on (571) 272-0781. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TERRY MCKELVEY
PRIMARY EXAMINER